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EXAMINER				
HANOR, SERENA L				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/530,491

Applicant(s)

MORTERS ET AL.

Examiner

SERENA L. HANOR

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 31-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 31-43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/88)
Paper No(s)/Mail Date See Continuation Sheet
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :04/06/2005, 04/28/2005, 08/17/2005, 10/24/2005.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 12/17/2002. It is noted, however, that applicant has not filed a certified copy of the 102 58 857.0 application as required by 35 U.S.C. 119(b).
2. Acknowledgment is made of applicant's claim for foreign priority based on the PCT application filed on 12/16/2003. It is noted, however, that applicant has not filed a certified copy of the PCT/EP03/143222 application as required by 35 U.S.C. 119(b).

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPASCT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The specification is objected to because the first paragraph should be a cross-reference to related foreign and/or PCT applications.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Claims 1-28 and 31-43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mangold et al. (EP 0 759 410 A1) in view of Mangold et al. (U.S. Patent No. 6,063,354), Mangold et al. (EP 1 097 964 A1), and Scharfe et al. (U.S. Patent Application Publication No. 2001/0042493 A1).

Mangold et al. disclose a pyrogenic silicon dioxide powder with the following characteristics:

- a BET surface area of less than 60 m²/g (p. 2 lines 31-32, *Applicants' claims 1, 2, 4, 6 and 8*),
- a DBP index 60 or less (p. 2 lines 31-32, *Applicants' claims 1, 3, 4, 6 and 8*), and

- a pH, measured in a 4% strength aqueous dispersion, of 3.8-5 (p. 3 Table 1, *Applicants' claim 11*).

Mangold et al. disclose a process for preparing a pyrogenic silicon dioxide powder, wherein:

1. at least one silicon compound such as silicon tetrachloride (p. 3 line 19, *Applicants' claim 20*) and/or at least one organosilicon compound (p. 2 lines 34-38, *Applicants' claim 19*) in vapor form, a free-oxygen-containing gas (p. 3 line 18) with an oxygen content adjusted so that $1 < \lambda \leq 1.2$, γ is > 2 (p. 4 Table 2, *Applicants' claims 12, 14, 15 and 20*), and the oxygen content is not more than 40 vol. % (air is about 21% oxygen), and a combustible gas are mixed in a burner of known construction (p. 2 lines 38-46, p. 3 lines 18-22, *Applicants' claim 13*);
2. the gas mixture, with a flowrate at the mouth of the burner of 38 m/s (col. 3 lines 22-23, *Applicants' claim 20*), is ignited at the mouth of the burner and burnt in the flame tube of the burner, wherein the mean, normalized flowrate of gas in the tube at the level of the mouth of the burner is more than 8 m/s (p. 4 Table 2, *Applicants' claims 12 and 16*);
3. additional air (secondary air) is introduced into the flame tube (p. 3 lines 18-19, *Applicants' claim 18*); and
4. the solid obtained is separated from the gas mixture and optionally purified (p. 2 lines 39-41, p. 3 lines 10-12, *Applicants' claim 12*).

Mangold et al. disclose an aqueous dispersion comprising the above silicon dioxide powder with a concentration of 30 wt. % or greater (p. 2 lines 49-57, *Applicants' claims 21, 22 and 31*).

Mangold et al. disclose a rubber article, a silicon rubber article, a plastic article, a dye or lacquer, glass article, a chemical-mechanical polish, or a catalyst support comprising a pyrogenic silicon dioxide powder, produced by adding the powder to a rubber, silicon rubber, plastic formulation, dye or lacquer formulation, or glass formulation, or polishing using the chemical-mechanical polish a catalyst support, or supporting a catalytically active material onto the powder (p. 2 lines 49-57, *Applicants' claims 32-41*).

Mangold et al. differ from the instant invention in that they disclose a pyrogenic silica with a surface area of that overlaps and/or lies within the instant invention.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have produced** a silica with a surface area as per the instant invention, as per Applicants' claims 1, 2, 4, 6 and 8, **because a prima facie case of obviousness exists** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Mangold et al. differ from the instant invention in that they disclose a pyrogenic silica with a DBP index that overlaps and/or lies within the instant invention.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have produced** a silica with a DBP index per the instant invention, as per Applicants' claims 1, 3, 4, 6 and 8, **because** a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Mangold et al. differ from the instant invention in that they do not disclose the mean aggregate area of the powder.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the mean aggregate area of the powder to fall within the range of the instant invention, as per Applicants' claims 1, 5, 6 and 8, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Mangold et al. differ from the instant invention in that they do not disclose the mean aggregate circumference of the powder.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the mean aggregate circumference of the powder to fall within the range of the instant invention, as per Applicants' claims 1, 7 and 8, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Mangold et al. differ from the instant invention in that they do not disclose the degree of filling of the powder in the aqueous dispersion.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the degree of filling of the powder to fall within the range of the instant invention, as per Applicants' claim 9, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Mangold et al. differ from the instant invention in that they do not disclose the viscosity of the powder in a 30 wt% aqueous dispersion.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the viscosity of the powder in a 30 wt% aqueous dispersion to fall within the range of the instant invention, as per Applicants' claims 10 and 23, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Mangold et al. differ from the instant invention in that they disclose a gamma value that is slightly above that of the instant invention.

Mangold et al. (U.S. Patent No. 6,063,354) disclose for normal operation of the reactors for the preparation of pyrogenic oxides, both in the open and in the closed mode of operation, gamma values and lambda values of greater than 1 are ideal (col. 4 lines 15-19, *Applicants' claims 12, 15 and 20*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have modified** the process of Mangold et al. *by decreasing the gamma value*, as per Mangold et al. (U.S. Patent No. 6,063,354), as per Applicants' claims 12, 15 and 20, **because** Mangold et al. (U.S. Patent No. 6,063,354) disclose that gamma values of greater than 1 avoid the formation of chlorine, and Mangold et al. use an amount of hydrogen that is slightly more than double the stoichiometrically required

amount while the instant invention discloses a gamma value that is slightly less than double the stoichiometrically required amount, and a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Furthermore, differences in concentration or temperature generally will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Mangold et al. differ from the instant invention in that they do not disclose the throughput as 0.1-0.3 kg SiO₂/m³ of core gas mixture.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the throughput to fall within the range of the instant invention, as per Applicants' claims 12 and 20, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I. Furthermore, differences in concentration or temperature generally will not support the patentability of subject matter encompassed

by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Mangold et al. differ from the instant invention in that they do not disclose the mean rate of discharge of the gas mixture as being at least 30 m/s.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the rate of discharge of the gas mixtures to be at least 30 m/s, as per Applicants' claim 17, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Mangold et al. differ from the instant invention in that they disclose a flowrate at the mouth of the burner of that is slightly below that of the instantly claimed range.

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have modified** the process of Mangold et al. *by decreasing the flowrate at the mouth of the burner*, as per Applicants' claim 20, **because a prima facie case of obviousness exists** where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to

have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Mangold et al. differ from the instant invention in that they disclose normalized flowrate of gas in the tube at the level of the mouth of the burner that is slightly above that of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have decreased** the normalized flowrate of gas in the tube at the level of the mouth of the burner, as per Applicants' claim 20, **because a prima facie case of obviousness exists** where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Mangold et al. differ from the instant invention in that they do not disclose adding double the amount air into the flame tube with respect to the amount of free-oxygen-containing gas introduced into the burner.

Mangold et al. (EP 1 097 064 A1) disclose adding double the amount of air into the flame tube (p. 3 line 30, *Applicants' claims 18 and 20*).

It would have obvious to one of ordinary skill in the art at the time of the invention **to have modified** the process of Mangold et al. to add double the amount of air into the flame tube, as per Mangold et al. (EP 1 097 064 A1), as per Applicants' claim 20, **because** differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, both process seek to produce the same product, so one of ordinary skill in the art would reasonably have been capable of adjusting the amount of secondary air added in order to further improve the product.

Mangold et al. differ from the instant invention in that they do not disclose that the aqueous dispersion has a certain mean particle size, a certain viscosity, or any added stabilizers or additives.

Scharfe et al. disclose an aqueous dispersion comprising the above silicon dioxide powder with:

- a concentration of .001-80 wt. % (p. 1 [0004], *Applicants' claims 21, 22 and 31*);
- a viscosity of a 50 wt % dispersion of less than 2500 mPas at a rate of shear of 50 rpm (p. 2 Table 2, *Applicants' claim 23*);
- an added stabilizer of bases, cationic polymers, aluminum salts, or a mixture of cationic polymers and aluminum salts or acids (p. 1 [0004], *Applicants' claim 25*); and

- additives (p. 1 [0004], p. 2 [0011-0012], *Applicants' claim 26*).

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have modified** the dispersion of Mangold et al. to further describe the use of additives and/or stabilizers, as per Applicants' claims 25 and 26, **because** both Mangold et al. and Scharfe et al. disclose essentially the same pyrogenic silica used in a dispersion, but Mangold et al. does not further describe the dispersion and "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Scharfe et al. differ from the instant invention in that the viscosity they disclose is for a 40 wt. % dispersion.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have modified** the wt % of the dispersion but still have a viscosity within the instantly claimed range, as per Applicants' claim 23, **because a prima facie case of obviousness exists** where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or

workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Scharfe et al. differ from the instant invention in that they do not disclose the mean particle size.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the particle size of Scharfe et al. to fall within the instantly claimed range, as per Applicants’ claim 24, **because** “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Scharfe et al. differ from the instant invention in that they disclose an aqueous dispersion comprising a pyrogenic silica concentration that overlaps and/or lies within the instantly claimed range.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have produced** an aqueous dispersion with a silica concentration per the instant invention, as per Applicants’ claims 31, **because** a prima facie case of obviousness exists in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art”. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, “[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range

is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Mangold et al. differ from the instant invention in that they do not disclose a process for preparing the aqueous dispersion or using it as an ink-jet paper coating.

Scharfe et al. disclose a process for preparing an aqueous dispersion, wherein the pyrogenic silicon dioxide powder is incorporated, using a dispersion device such as a rotor-stator system, into water which can be stabilized by adding bases, cationic polymers, aluminum salts, or a mixture of cationic polymers and aluminum salts or acids and then further dispersed for 5-30 minutes (p. 1 [0004] and [0010], *Applicants' claims 27 and 28*). Said aqueous dispersion may be used as a coating for ink-jet paper (p. 1 [0011], *Applicants' claims 42 and 43*).

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have produced** the aqueous dispersion as per Scharfe et al. and use it as a coating for ink-jet paper, as per Applicants' claims 42 and 43, **because** both Mangold et al. and Scharfe et al. disclose a pyrogenic silica used in similar applications, but Scharfe et al. simply adds another application, and the use of the pyrogenic silica does not further define the silica itself and therefore has no patentable weight. Furthermore, the pyrogenic silicas of both inventions are essentially the same, and the processes making the aqueous dispersions of pyrogenic silicas are essentially the same. Finally, "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old

composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Conclusion

Claims 1-28 and 31-43 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SERENA L. HANOR whose telephone number is (571)270-3593. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SLH

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